

REMARKS/ARGUMENTS

Reconsideration of this application is requested. Claims 1-8 remain active in the application subsequent to entry of this Amendment.

Claim 1 is amended in order to correct the spelling of "solid" in the last line and is responsive to the examiner's objection as to informalities. The claim is also amended to remove the term "type" which is usually regarded as an objectionable term as well.

The balance of the Official Action relates to a single prior art-based rejection directed to all claims.

Claims 1 to 8 are rejected under 35 USC 103(a) as being unpatentable over Yamazaki U.S. 6,071,606 ("U.S. '606" hereinafter) in view of Yamada U.S. 5,897,958 ("U.S. '958" hereinafter).

Claim 1, discussed herein as a representative claim, is directed to a photocatalytic coating liquid. The photocatalytic coating liquid has essential requirements that: (1) it comprises (A) titanium oxide fine particles formed of anatase type crystal as a main component, (B) colloidal silica and (C) a binder formed of a hydrolysis-condensate of a titanium alkoxide and that (2) it has a component (A) content of 5 to 50 mass%, a component (B) content of 25 to 75 mass% and a component (C) content, as a TiO_2 solid content, of 10 to 55 mass% based on the total solid content.

As is clear from the above essential requirement (1), the photocatalytic coating liquid of claim 1 has a structure in which the anatase type titanium oxide fine particles (A) and the colloidal silica (B) are dispersed in the binder (C) as a kind of matrix. According to the description, page 13, second paragraph, the binder (C) is a product that is obtained by hydrolysis-condensation of a titanium alkoxide and has a $\text{TiO}_x\text{C}_n\text{H}_m$ structure containing organic unreacted groups. It should be emphasized that the binder (C) is not TiO_2 .

Page 13, second paragraph of the specification describes that the use, as a binder, of the binder (C) having the titanium alkoxide-based $\text{TiO}_x\text{C}_n\text{H}_m$ structure improves the durability of a film more than the use of TiO_2 as a binder.

In the above essential requirement (2), the amounts of the components (A), (B) and (C) are limited to the specified ranges, respectively. The technical significance of this limitation will be apparent by comparing the results of Examples 1 to 9 and the results of Comparative

Examples 1 to 9 in Tables 1 and 2 on pages 37 and 38 of the description.

The coating liquid described in U.S. '606 contains a first essential sol containing a precursor of titania (col. 2, lines 15-16), a second essential sol containing at least one compound of silica and alumina (col. 2, lines 16-17 and lines 24-25) and a third optional sol containing a precursor of amorphous metal oxide such as silica sol, silica-alumina sol or silica-zirconia sol (col. 3, lines 19-24). The hydrophilic film obtained has a matrix phase formed essentially of titania and optional amorphous metal oxide (silica, alumina, zirconia) and a disperse phase formed of at least one compound of silica and alumina.

When a film formed from the coating liquid of the present claim 1 and a film formed from the counterpart of U.S. '606 are compared, the former and the latter are significantly different in that, in the former, titanium oxide fine particles (A) and colloidal silica (B) are dispersed in the binder (C) having the $\text{TiO}_x\text{C}_n\text{H}_m$ structure and that, in the latter, the matrix phase formed of essential TiO_2 and optional metal oxide of silica, alumina or zirconia forms a continuous phase in which silica or alumina is dispersed (see col. 2, lines 26-43 of U.S. '606).

In U.S. '606, TiO_2 constitutes a continuous matrix phase and is not dispersed in the form of fine particles. On this point, U.S. '606 is completely different from applicants' invention as defined in claim 1.

In Office Action, page 3, last paragraph, the Examiner states that Yamada U.S. '958 discloses that titanium oxide made from titanium alkoxide acts as binder. However, the binder (C) used in the present claim 1 has the $\text{TiO}_x\text{C}_n\text{H}_m$ structure and is not TiO_2 . As a binder, the binder having the $\text{TiO}_x\text{C}_n\text{H}_m$ structure is excellent as compared to TiO_2 as is described in applicants' specification, page 13, second paragraph.

For the above reasons, claim 1 is not at all obvious over U.S. '606 in view of U.S. '598.

Since claims 2 to 8 are each directly or indirectly dependent upon the claim 1 and include the features of the patentable claim 1, they are similarly patentable.

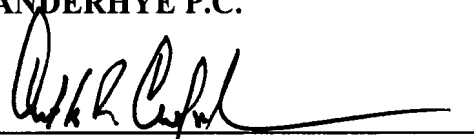
For the above reasons it is respectfully submitted that the claims define inventive subject matter. Reconsideration and allowance are solicited. Should the examiner require further information, please contact the undersigned.

TANAKA et al.
Appl. No. 10/529,498
April 18, 2007

Respectfully submitted,

NIXON & VANDERHYE P.C.

By: _____



Arthur R. Crawford
Reg. No. 25,327

ARC:eaw
901 North Glebe Road, 11th Floor
Arlington, VA 22203-1808
Telephone: (703) 816-4000
Facsimile: (703) 816-4100